



OUTDOOR KITSET

MODULE 3 FOOD

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FOOD

CONTENTS

	Page
INTRODUCTION	5
SECTION 1 FOOD FOR TRAMPING TRIPS	6
Day trips (leaders notes	7
Weekend trips (leaders notes	8
Recipes for tramping	11
Energy expenditure and requirements for adults & children	13
Energy values of foods used in the outdoors	14
Rations for a cross country trip	16
Hygiene hints for the outdoors	18
SECTION 2 FIXED CAMPS	20
Cooking in bulk	21
Recipes for open fires	23
Recipes for well equipped kitchens	26
Quantity checklist	35
Sample menu	38
SECTION 3 TEACHING AIDS/RESOURCE MATERIALS	39
APPENDICES	47
Appendix 1 Safe drinking water	47
Appendix 2 Meat - Some hints and precautions for use in the outdoors	50
Appendix 3 Freeze dried foods	52
Appendix 4 Eating out for trampers and hikers (Consumer Magazine article)	53

FOOD

INTRODUCTION

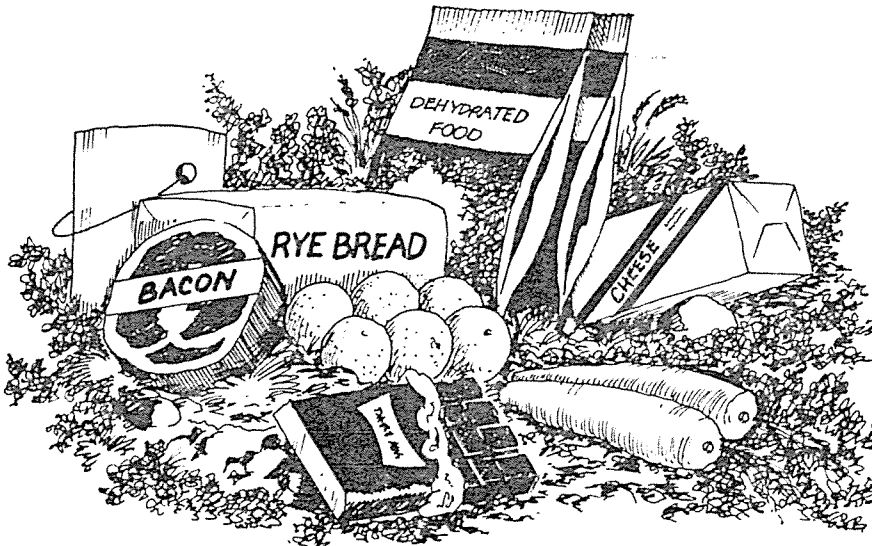
Food is an essential part of any trip in the outdoors. Section one contains suggestions for the selection, packing and preparation of food for tramping trips. It also includes energy values of foods commonly used in the outdoors. This information will help you to select an appropriate menu for your trip whether it is a day trip, weekend trip or longer.

Section two gives information for preparing food on open fires and well equipped kitchens. Menus and quantities for large groups, and a selection of recipes, are also included.

Section three lists sources of resource material and has some material suitable for handouts.

The appendices contain information relating to water treatment, the use of meat, freeze dried foods and an article from the Consumer magazine entitled "Eating out for trampers and hikers".

The combined information in this module will assist in the planning and selection of food for a variety of situations in the outdoors.



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SECTION 1

FOOD FOR TRAMPING TRIPS

DAY TRIPS

- o Probably most easily organised if each student brings his or her own food.
- o A hot drink at lunchtimes is often desirable or necessary. For this organise:

portable stove	large billy	drink
at least 2 large mugs		
- o Suitable drinks are tea, coffee, soup, hot chocolate, and powdered fruit drinks.
- o The advantages of powdered fruit drink are:
 - it can be consumed hot, cold or luke warm.
 - it has more universal taste appeal than tea or coffee.
 - there are no problems about additives i.e. milk or sugar.
 - sugar, honey, glucose can be added if an energy boost is needed.
- o Pre-mixing milo, or drinking chocolate, with milk powder, prevents lumps forming.
- o Consider carrying a thermos for a quick or emergency hot drink. (yes, some are fragile).
- o Consider how food is to be packed and distributed amongst party members. Suggest appropriate methods for packing e.g. plastic containers for food that can be crushed.
- o Stress non-use of emergency food. This can be done by asking to see emergency rations at the end of the day.
- o AVOID LITTER.
 - Insist that whatever is carried in can be carried out. (Bury biodegradable rubbish).
 - Carry some sturdy plastic bags for rubbish and let all party members know who carries them.
 - Five minutes after passing around wrapped barley sugars give a second one to each child who can produce the previous paper.
- o If you have doubts about students being able to bring their own food, set a charge and arrange for parent helpers to organise food. Provide a variety in the food and allow children to bring some snacks (specify). With younger children it may be better to arrange all the food for a day trip.
- o Material suitable for a handout appears in the Teaching Aids Section 3. It can be handed out with other information which has to be distributed prior to the trip (e.g. details of equipment, times etc.).

WEEKEND TRIPS

1. The method you choose for organising food will depend on the reason for the trip. Do you want to teach the students anything about planning and preparing food?

2. Ways of organizing food include:

- o Leader plans and buys all food. Party members split cost. (This saves the effort of organizing students, but does not allow for individual preferences and may inflate costs if items usually obtained from home have to be paid for).
- o Each group (4-6 members) plans its own menu and organises buying or obtaining the items. (This gives opportunities for group decision making and student involvement - important social aims). If students are planning their own menus, use the blank menu which appears on page 44.
- o Each member brings their own breakfasts, lunches and snacks, and a nominated contribution to the evening meal and/or drinks. (This allows for individual taste preferences and encourages responsibility in each individual).

3. PRE-TRIP PLANNING. CONSIDER THESE POINTS

- | | | |
|-------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------|
| WHAT TO TAKE, CONSIDER: | o weight | o ease of preparation |
| | o cost | o calorific value |
| HOW MUCH TO TAKE: | o quantities | o spare food |
| HOW TO PACK IT: | o containers from chemists
o plastic containers
o plastic bags
o eggs in oatmeal or muesli, and other techniques | |
| NECESSARY EQUIPMENT: | billies, pans, cutlery (knife, spoon)
bowl, mug, portable stove | |
| HOW TO COOK IT: | fire, portable stove, fuel | Refer Fires & Cooking Module of this Kitset |
| RATIONING: | consider food value in relation to weight on longer trips.
The energy value chart on page 14 will assist you to identify energy values of foods commonly used in the outdoors. | |

It may be useful to have some of the following items available to show students when giving pre-trip planning lessons.

- o packets of fruit drinks, soups, powdered milk, dried veges., instant puddings, and a few tins for comparisons.
 - o equipment
 - o solid bread
 - o containers from chemists, and other appropriate containers
4. On the trip, take opportunities informally to increase students knowledge and skills. e.g. make hot jelly, fried scones, cheesecake.
 5. **AVOID LITTER.** Check camp sites or huts thoroughly before leaving.
 6. **EMERGENCY FOOD.** Should include some items which don't need to be cooked, e.g. chocolate, barley sugars.
 7. **HINTS**

You may need to help some groups with the timing of their meals. This avoids disasters like instant potatoes being made up just as the stew is being put on.

Stress the importance of having a decent breakfast before leaving home on the morning of the trip.

PLANNING A MENU FOR TRAMPING

The following suggestions may help students to plan their own menu.

BREAKFASTS: Muesli, porridge, bacon, saveloys, fried chub sausage, tinned baked beans, bread, hot drink, flaked rice with dried fruit.

LUNCHESES: Take a cut lunch for the first day. For other days take health bread, cabin bread, butter, cheese, salami, sardines, chub sausage, peanut butter, dates, jam, honey, gingernuts, carrot, fresh fruit, fruit drinks, soups.

DINNERS: Packet soups, cup of soups. Dried vegetables (peas, carrots, beans, onions, potatoes) precooked or par-boiled rice, frozen fresh meat (for 1 or 2 nights depending on temperatures e.g., sausages, steak, saveloys, mince.) Packet gravies and soups are good in stews. Packet dinners e.g., dehydrated meals.

DESSERTS: Instant puddings, stewed dried fruit, jellies, instant custards.

SNACKS: Chocolate, lollies, nuts, dried fruit, biscuits and scroggin.

DRINKS: Tea, coffee, chocolate, powdered fruit drinks, remember milk and sugar (tubes of condensed milk are useful).

EXTRAS: Don't forget the salt, margarine etc. Herbs and spices can add a great deal to a meal. Premix milo and milk powder to avoid lumps.

MENU

One possible menu

	BREAKFAST	LUNCH	DINNER	SNACKS
SATURDAY	at home	cut lunch powdered fruit drink, fruit.	soup, mince, potatoes or rice, peas, gravy, instant pudding. Coffee	nuts biscuits sultanas (scroggin)
SUNDAY	muesli, milk, saveloys, bread, coffee.	bread, butter, cheese, honey, fruit cake, orange.	Hopefully at home. Take sardines, biscuits.	chocolate

RECIPES FOR TRAMPING

- o For one billy dishes and coal cookery refer to Section 2 of this module "Recipes for open fires".
- o Freeze dried foods refer to Appendix 3.

The following recipes can be prepared before departing on a trip.

Tramping Bread (1 loaf)

Before going on a tramp put 1 cup flour, 1/2 tsp salt, 1 Tab milk powder into plastic bag. Put 1 level tsp dry yeast & 1 tsp sugar into another plastic bag.

When you need fresh bread add 1/4 cup warm water to yeast & sugar. When bubbling add flour, salt & milk powder. Knead with knuckles until dough is smooth. Leave to rise in a plastic bag and pop in your pack. After the day's tramp, put dough into tinfoil on top of stones in the bottom of the billy. Put lid on upside down, put billy on stones in ashes - put ashes on top of lid. The billy is hot enough if you spit on finger & lay it on side of billy & it sizzles. Cook 10 minutes.

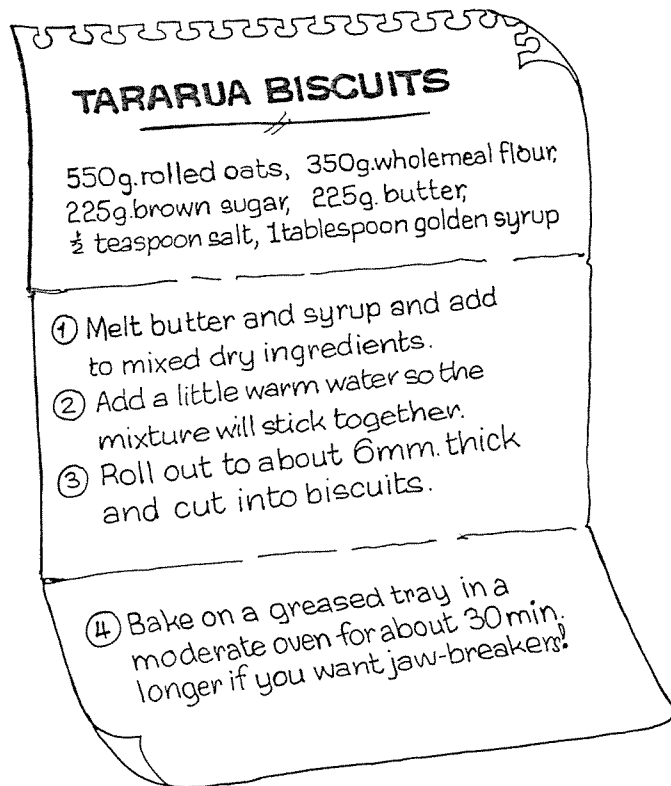
Tramping Biscuits

8 oz (225 g) butter	2 lge cups flour	2 tsp baking powder
1 3/4 cups sugar	1 Tab condensed milk	1/2 tsp baking soda
1 egg	1 cup coconut	2 cups cornflakes
1 tsp vanilla essence		

Cream butter & sugar, add condensed milk, egg & essence. Mix well, add dry ingredients, lastly coconut & cornflakes. Roll into small balls (walnut size) flatten. Bake 20 mins at 300°F. These are sweet, crunchy & keep well.

Gingernuts

1 cup butter 3 cups of sifted flour 1 cup golden syrup
1 tsp soda 1 cup sugar 1 dessertspoon ginger
Melt butter/syrup/sugar and add to sifted dry ingredients. Roll on board. Cut circles with glass, place on oven tray and bake in a cool oven. (Add more flour if you like thicker gingernuts.) Place gingernuts in a screw top alloy or plastic container and they're ready to go.



LOW COST CHOCOLATE

250 g Kremelta 1 cup skim milk powder 1 cup icing sugar
3 Tab cocoa 1 cup dried fruit or chopped nuts
Melt Kremelta, add fruit or nuts, sift dry ingredients and add to mixture. Mix well and pour into shallow tin. Cut into squares and store in fridge.
* A high energy addition for scroggin.

PRECOOKED MEALS

In cooler weather it is convenient to precook an evening meal for ease of preparation eg. mince or stew. When you freeze the meal place it in an icecream container and when frozen pack it into 2 plastic bags. If you pack the frozen meal and insulate it well, it will keep frozen for quite a long time. (More information on the use of meat in the outdoors appears in Appendix 2 of this module).

More recipes for tramping appear in Appendix 4 of this module.

S - ultanas
C - hocolate
R - aisins
O - range peel
G - inger
G - lucose
I - magination
N - uts

EMERGENCY FOODS: Dried soup mixes, rice, sardines, biscuits. Include some things which don't require cooking like barley sugars, chocolate or dried fruit.

Working out how much you need requires practice. Remember that you are likely to be very hungry after walking all day. The manufacturers' idea of one serving doesn't always apply in the bush. The energy values chart on page 14 will assist you to recognise the types of food which give a high energy yield for weight.

PACKING: Label containers.

Carry butter, honey, jam etc., in aluminium or plastic screw top containers (available free from most chemists).

Dry foods (milk powder, sugar, etc.), can be carried in screw top containers or plastic bags/preferably 2.

Avoid wire tags as they can puncture bags - use rubber bands or slightly larger plastic bags and tie the tops (but not too tightly).

Pack things you need for lunches in one large plastic bag and place it near the top of your pack. Items for the evening meal and breakfasts can be carried lower down.

EQUIPMENT: Billies, mugs, plate or bowl, knife and spoon, matches. Use a cotton or nylon bag as a billy bag to help keep other gear clean.

ENERGY - EXPENDITURE, REQUIREMENTS, VALUES

The following information will help you to understand why a high energy diet is so important for people taking part in outdoor activities such as tramping. The energy values chart will be of particular interest to people planning trips in the outdoors for long periods, as weight in relation to energy yield is important.

ENERGY EXPENDITURE IN VARIOUS LEISURE ACTIVITIES

Exercise Level	Examples of Exercise	Man 70 kg Rate Kcal/Min	Woman 58 kg Rate Kcal/Min
Resting	Sleeping, Reclining	1.0 - 1.2	0.9 - 1.1
Sedentary	Playing musical instrument Driving vehicle	Up to 2.5	Up to 2.0
Light	Fishing, Bowls, Billiards Slow walking	2.5 - 4.9	2.0 - 3.9
Moderate	Walking - moderate pace Gardening, Fast cycling	5.0 - 7.4	4.0 - 5.9
Heavy	Tramping with pack Swimming, Running	7.5 - 12.0	6.0 - 10.0

SOURCE: "Recommended Dietary Allowances" Ninth Revised Edition 1980
National Academy of Sciences Washington DC 1980 page 24

Kcal is an abbreviation for kilo calorie, the correct name for what was formerly known as a calorie.

ENERGY REQUIREMENTS FOR CHILDREN

CHILDREN	AGE IN YEARS	RANGE OF ENERGY REQUIREMENTS KILOCALORIES
Males and Females	7 - 10	1650 - 3300
Males	11 - 14 15 - 18	2000 - 3700 2100 - 3900
Females	11 - 14 15 - 18	1500 - 3000 1500 - 3000

These energy allowances are proposed as average and approximate allowances for feeding groups of children based on studies done in the United States of America. When children are active they are likely to require the maximum proposed energy requirement.

SOURCE: "Recommended Dietary Allowances" Ninth Revised Edition 1980
National Academy of Sciences Washington DC 1980 pages 23, 28.

ENERGY VALUES OF FOODS USED IN THE OUTDOORS

	Kilo- calories	Approx. 100 g measure	Carbo- hydrate	Protein	Water
	per 100 g		Grams per 100 g		
Apples, fresh	46	1 small	12	-	84
dried	288	-	72	1	20
Apricots, dried	270	16 halves	67	5	15
Bacon, medium fat	414***	5 thin	0	15	42
Biscuits, savoury rye	321	12 pieces	71	9	6
water biscuits	440***	20 small	76	11	5
plain	457***	10 biscuits	75	7	3
fancy/homemade	500***	10 biscuits	66	6	5
Boiled sweets	327	Varies	87	Trace	-
Bread	253	3 slices	50	8	39
Breakfast drink mix	367	1x100 g sachet	98	-	-
Butter, Margarine	739***		-	-	15
Cereal, Weetbix	340	6 biscuits	70	11	4
Cheese	406***	4 foil-wrapped segments or 4x2.5 cm cubes	-	26	37
Chocolate	528***		65	5	1
Cocoa and sugar	353		58	9	2
Custard powder	342		85	Trace	-
Dates	248	15 medium	64	2	15
Eggs, fresh	150	2 eggs	Trace	12	75
dried	586***		Trace	44	7
Fat, dripping	890***	1/2 cup	0	Trace	Trace
Fish, tinned Salmon	155	1/2 small tin	0	20	70
Tuna in Oil	289	1/2 small tin	0	23	55
Flour	363	1 cup	69	13	14
Fruit bar (dried fruit & coconut)	320	2 bars	39	5	18

	Kilo- calories per 100 g	Approx. 100 g measure	Carbo- hydrate	Protein	Water
			Grams per 100 g.		
Honey	288	4 tablespoons	76	Trace	20
Instant Pudding	360	(1 pkt 85 g)	98	-	-
Jam	261	4 tablespoons	69	Trace	-
Jelly crystals	295	1 packet	74	5	-
Lentils	304	1/2 cup	53	24	12
Meat, fresh raw	200	-	0	19	60
canned	217	1/3 of 340 g tin	0	27	59
raw dried mixes	Range***	Vary	Vary	Up to	Vary
with meat	400-600			20	
Milk, dried whole	500***	2/3 cup	39	26	3
non-fat	364	3/4 cup	53	36	4
condensed sweetened	360	1/2 cup	56	8	26
evap. unsweetened	160	1/2 cup	11	9	69
Muesli, uncooked	370	3/4 cup	58	13	9
Nuts	550***	1/2 cup	10	20	2
Oatmeal, uncooked rolled oats	388	1-1/3 cup	70	14	9
Oil	900***	1/2 cup	0	Trace	Trace
Onions, fresh	42	4 medium	5	1	93
Pasta (spaghetti, macaroni)	370	1 cup	79	14	10
Peanut butter	623***	1/2 cup	9	23	1
Potatoes, fresh	87	2 small	21	2	76
dried	358	3 cups	83	8	6
Raisins	246	1/2 cup	64	1	22
Rice	361	1/2 cup	87	7	12
Salami, dried	403***	Varies	Trace	22	42
Sardines	217	About 6	0	24	58
Scroggin**	443	2/3 cup	26	10	8
Soups, dried	350	3 pkts	51	18	3

Soups, canned	120	1/4 of 440g tin	15	1	71
Sugar	394	1/2 cup	100	-	-
TVP (textured vege protein)	344		38	48	7
Vegetables, dehydrated	340	1/2 cup	80	7*	4
general values					

* Peas are much higher in protein content.

** Scroggin equal weights of raisins, peanuts, chocolate.

*** High energy foods, those with more than 400 kilocalories per 100 g.

AN EXAMPLE OF AN AVERAGE LIST OF RATIONS FOR FOUR ADULTS ON A 10-DAY CROSS COUNTRY TRIP

40-day Grams	Supply Food	Kcals/ 100 g	Total Kcals	Ration/ person/ day	Kcals/ person/ day
				g	
2000	Bread	253	5060	50	127
4000	Biscuits, cabin	450	18000	100	450
1125	Biscuits, plain, sweet	457	5140	28	129
1500	Flour, self raising	363	5445	37.5	136
1000	Rice or macaroni	370	3700	25	93
2000	Oatmeal	388	7760	50	194
100	Custard powder	342	340	2.5	9
4000	Meat, fresh or canned	217	8680	100	217
* Freeze dried meat weighs considerably less than fresh or canned meat and yields from 400 to 600 kilocalories per 100 grams.					
3000	Bacon	414	12420	75	311
400	Milk, dried non-fat	364	1456	10	36
1000	Milk, full cream	500	5000	25	125
1000	Cheese	406	4060	25	102
2000	Butter, margarine	739	14780	50	370
500	Fat, cooking	890	4450	12.5	110
400	Soups, dried	350	1400	10	35

40-day Grams	Supply Food	Kcals/ 100 g	Total Kcals	Ration/ person/ day g	Kcals/ person/ day
1500	Potato - dehydrated	358	5370	37.5	134
500	Vegetables - dehydrated	340	1700	12.5	43
500	Peas, green, dried	340	1700	12.5	43
2500	Sugar	394	9850	62.5	246
2000	Jam, honey	264	5280	50	132
2000	Chocolate	528	10560	50	264
500	Boiled sweets	327	1635	12.5	41
2500	Fruit, dried	270	6750	62.5	169
300	Jellies	295	885	7.5	22
1500	Scroggin	443	6645	37.5	166
500	Tea			12.5	
200	Coffee, Cocoa			5	
250	Salt			6.25	
100	Curry powder			2.5	
500	Miscellaneous: Sardines	217	1085	12.5	27
600	Powder drink mix	367	2200	15	55
50	Marmite/Vegemite	200	100	1.25	3
<hr/>					
Totals					
40025			151451	1000	3789
<hr/>					

This is approximately 1kg/person/day supplying approximately 3800 kcals.

HYGIENE HINTS FOR THE OUTDOORS

Ensure sound hygiene is practised at your camp. This will help prevent illnesses such as stomach upsets.

To grow, bacteria need:

- o Food (almost anything will do)
- o Moisture
- o Suitable temperatures
- o Time

Some simple rules are:

1. Watch personal cleanliness

Clean hands are most important
Always wash hands before handling food
SOURCES of bacteria are: HANDS, MOUTH, NOSE and BOWELS

2. Protect food from:

Dust
Flies
Insects
Rats
Humans ... which all contaminate food

Handling - touch as little as possible

AND keep raw and cooked foods separate, especially meat.

3. Cook food thoroughly. If unable to use immediately, must be refrigerated.

4. Use clean utensils for:

Cooking
Eating

5. Carry adequate cleaning supplies

6. If camping, ensure all drinking water is taken from upstream of the campsite.

See References for suitable references on food hygiene.

These should include Department of Health publications available from district health offices and Hobbs B.C., McLintock J.S. **Hygienic Food Handling**, 3rd Edition, St John Ambulance Association, London, 1972.

Prepared by the Nutrition Section
Department of Health

REFERENCES

1. Leaflets available from district offices of the
Department of Health:

No 176 Keeping it Cool (Storage times for refrigerated
and frozen foods)

No 99 Facts for Food Handlers

No 165 Fundamental Five of Safe Food Service

No 180 Food Care

No 372 Ways to Foil Food Infection

A 33 Important Temperatures in Food Hygiene (Poster)

2. General reference for Food Handling:

Hygienic Food Handling - 3rd Edition by B.C. Hobbs and J.S. McLintock.
Published by St John Ambulance Association, London, 1972.

SECTION 2

FIXED CAMPS

FIXED CAMPS

Catering for large groups requires careful planning and a knowledge of food hygiene and presentation. A fixed camp, where meals are prepared on an open fire, involves perhaps more organisation than cooking in a fully equipped kitchen. In this section there are recipes for cooking on fires and also in well equipped kitchens. (The Fires and Cooking module of this kitset has more information on using fires and stoves in the outdoors).

COOKING IN BULK

1. Before a menu can be planned, several practical questions must be answered.
 - o What meals are required? Morning tea? Afternoon tea? Supper?
 - o Are any special meals required? BBQ's? Picnics?
 - o What are the cooking facilities?
 - o What are the storage facilities?
 - o What items can be delivered, and when?
 - o Who is doing the cooking? What assistance is available for the cook?
 - o What is the camp programme for the day?
2. Remember that appetites increase as the week progresses, and adjust quantities accordingly.
3. These suggestions might help keep costs down:
 - o Buy in bulk from wholesalers (but consider storage).
 - o Do not allow for choices (leftovers are an exception).
 - o Some tinned foods may be cheaper or may save preparation or waste.
 - o Buy fresh foods that are in season.
 - o Ask students for donations of jam, bottled fruit, biscuits.
 - o Make scones or pikelets instead of buying biscuits.
4. To plan your menu: use the blank menu in the teaching aids section (p. 45).
5. Keep meals at beginning and end of week simple and easy to prepare. You will be busy with other things (unpacking, getting to know the kitchen, cleaning up).
6. Check oven capacity before planning a main course and a pudding which both need to be cooked in an oven.
7. In addition to the items on your menu you may need:

detergent	soap powder	cleansing powder
sponges	dish cloths	tea towels
steelwool	dripping or oil	flour
gravy mix	salt & pepper	herbs/spices
vanilla	flyspray	insect repellent
matches, fire-lighting aids		toilet paper
rubbish bags or rubbish containers		
cooking equipment - sharp knives, peelers, ladles, etc.		

8. A good source of recipes is "Standard recipes for 50". This can be borrowed from most Education Department resource units.
9. Deciding quantities can be difficult. Refer to the quantity checklist on page 35 for assistance.
10. List your requirements under the following headings, including days where appropriate.

o wholesale groceries	o greengroceries	o milk
o meat	o bread	
11. Take lots of icecream containers with lids to use as serving bowls and for storing left-overs.
12. A large plastic rubbish bin with a ladle is very useful for mixing and serving cordial - mix where the drink is to be served.
13. Organise separate containers for burnable, buriable and non-biodegradable rubbish, or observe the rubbish disposal procedures at the camp.
14. If under canvas and cooking on an open fire, the following items are very useful:
 - o grill/hot plate (old oven trays are adequate for grills)
 - o boiler - a large tank fitted with a tap, placed over an open fire.
 - o billy hooks, billies, camp ovens, ladles etc.

SOME HINTS FOR COOKING IN BULK

Take care to observe any directions posted in kitchens, which tell you how to use cooking equipment.

MEAT

Always use roasts or corned beef near the end of a camp. If using chicken, prepare it early as it does not keep as well as other meat.

- a quick way to thicken soups and stew - sprinkle with oatmeal.
- thicken and flavour soups and stew with powdered soup mix.

VEGETABLES

- baked potatoes are easier to prepare than mashed potatoes.
- use some dehydrated vegetables for convenience.
- a coleslaw is often easier to prepare than cooked vegetables.
- on arrival at your camp, time how long it takes to boil a large pot of water. This will help you judge cooking times for vegetables.

BAKING

- when making scones, melt butter and add with milk to flour - this is much easier than rubbing butter into flour.
- skim milk powder may be substituted for fresh milk in recipes.

RECIPES FOR OPEN FIRES

If you are cooking for large numbers over an open fire you will need a good supply of fuel. Give children preparing their own food a simple menu so they will have success.

ONE BILLY DISHES

Ribeto (Serves 10)

500g (1lb) rice	1 can tomato soup	1 can corned beef
2 onions	1 can peas	salt and pepper

Cook rice until well done. While rice is cooking fry onions in butter. Add tomato soup and corned beef. Heat peas. Place an amount of rice in centre of plate. Fill rice nest with peas and pour meat mixture over this.

Basic Chowder (Serves 10-12)

12 slices bacon, or equivalent of meat, beef, mutton, fish etc.	
10 medium sized potatoes, diced.	salt and pepper
1 1/2 litres (2 qts.) liquid (water, stock or milk)	
4 - 6 onions	2 cans whole corn
	5 cups cubed meat or
Diced carrots or sliced vegetables	5 cups fish

Cut bacon and onion very small. Fry in billy until brown. Stir frequently. Pour off extra fat. Add vegetables, fish or meat with a little water. Cook until vegetables and fish or meat are done. Add diced potatoes half an hour before time for serving and cook until done. Season, and add milk before serving. Bring to boiling point but do not boil.

Camp Fire Stew (Serves 10)

1kg (2lbs) mince	3 tsps fat	2 onions
3 cans concentrated soup		salt and pepper

Fry mince in small balls with onion in billy. Pour off excess fat. Add vegetable soup with enough water to prevent from sticking. Cook slowly.

Dumplings - 10 people

2 cups self-raising flour	2 dsp milk powder
100g butter	1/2 tsp salt

Mix ingredients to a firm dough. Place balls of dough rolled in flour on top of stewing food and cook for 15-20 minutes with a lid on the billy. If dumplings are to go with stewed fruit, add 1 dsp sugar. Make sure there is plenty of liquid in the billy.

Sausage Hot Pot - (serves 10)

Take 20 sausages or sausage meatballs.

Brown lightly - put in billy.

To every 4 sausages add:

5 sliced onions, carrots, apples & tomatoes

(Dehydrated veges & apple, & tomato soup can be used)

A handful sultanas - cover with water & simmer.

STICK COOKERY

BISQUICK RECIPE

The following basic recipe can be used in a wide variety of ways.

1 cup of flour for every 3 - 4 people

1 cup of milk powder to 4 cups of flour

1 tsp baking powder to each cup of flour

For a sweet mixture add 1/2 cup of sugar to each 4 cups of flour

For a savoury mixture add salt and pepper to taste

Sultanas, currants, raisins, cinnamon and other spices may be added as desired.

This basic mixture is best carried in plastic bags ready mixed and dry, water is added when needed. Use for:

Stick Cookery

Peel a stick about 1 metre long, (make sure not to use a wood that has an unpleasant or strong taste e.g. wattle etc.) Cooking should be done over coals. Heat the stick first then dip it into dry flour. This enables the cooked twist to be pulled easily from the stick. Use just enough water to make mixture sticky. Roll out flat, 4cm. x 5cm. Flour the strip and wind it spirally around the stick leaving slight gap between spirals. Bake 10-15 minutes turning regularly. Closed baked cylinders may be filled with sweet or savoury fillings, e.g. mixture of honey and chopped nuts, diced onion and grated cheese etc. Such mixtures can be pre-made, carried in containers and the twists filled directly from them.

Pig in a Blanket

A pre-cooked sausage with a covering of bisquik dough. Bake 10-15 mins. over coals. (Dip in sauce).

Pioneer Drumsticks - (serves 4-5)

500g (1lb) of mince or sausage meat

Onions if desired

2 eggs

salt and pepper

1 to 2 cups of crumbled cornflakes

Mix ingredients & wrap tightly around end of stick. Bake and serve in bread rolls or slices of bread. If preferred, cornflakes may be pressed on after meat is placed on stick. This forms a crust.

Kebab

Thread meat - beef, pork or mutton - on a stick or skewer, alternately with small onions, partly-cooked potatoes and small tomatoes. Brush with oil, broil and serve with bread or on a bun. Skewers made from stainless steel are desirable.

COAL COOKERY

Ash Cakes (using Bisquick recipe)

Mix to a dryish consistency, flatten out dough into thin biscuit-sized pieces, and place directly on to hot coals. Brush ash off when cooked. Ash cakes are good eaten straight from the coals with butter and jam. It's best to use a sweet bisquik mix with fruit and spices.

Takakau (or Maori bread) - (serves 4-5)

2 cups of flour water or milk pinch of salt
(Baking powder can be used)

Mix up to a sticky consistency and shape with as little handling as possible into a square 10cm (4") by 5cm (2"). Either wrap in tin foil and throw into fire embers or bake in a tin. Takakau can be placed in the embers and the burnt crust taken off before eating. Best served with butter and eaten when hot.

Chicken Dinner

Wrap in foil with herbs and onion, sliced potato and a knob of butter. This method works for most small slices of meat eg. chop/bacon/etc.

Eggs Baked in Orange Peel (Serves 10)

10 eggs 5 oranges 10 slices of bacon
salt and pepper

Cut orange in half. Remove flesh from halves without breaking skin. Break eggs into skins, then season, set in coals to bake. (Orange skins may be lined with bacon or cheese slices).

Onions - place whole onions in ashes and bank with ash and coals.

Potatoes Baked in a Can (Mini Hangi) (Serves 10)

12 medium size potatoes

Scrub potatoes well. Wrap them in wax paper or damp hand towels. Place layer of dirt or sand in bottom of can. Place potatoes in can with sand or dirt packed well around each. Wet sand or dirt until a bit of it holds shape when squeezed. Place in coals. Bank coals around cans. Moisten occasionally if sand becomes dry. Potatoes may be "cored" and a pre cooked sausage or saveloy inserted for extra flavour and variety. Onions may be cooked like potatoes. Cooking time - 1 hour.

Banana Boats (serves 10)

10 bananas 10 marshmallows raisins or nuts
10 small pieces of chocolate

Cut a long strip in banana peel on its inside curve. Scoop out some of the banana and fill with chocolate, raisins or nuts and marshmallow. Bake in coals 15-20 minutes or wrap in foil and place in coals for cooking.

Baked Apples

Core apple and fill cavity with raisins, brown sugar, nuts.
Wrap in foil and bake in coals.

Apple Dumplings (serves 10)

500g (1lb) stewed apples (fresh or dehydrated)
1 handfuls flour 2 dsp milk powder 3 tsp baking powder
60g (2oz) butter currants, raisins, spices as desired
Mix to a firm dough. Roll dough out thinly and spread with apple and cinnamon. Roll up and bake in foil in coals.

RECIPES FOR WELL EQUIPPED KITCHENS

These recipes are suitable for preparing meals for large numbers. It is simple enough to adapt the recipes for larger or smaller groups. For convenience recipes appear under the headings: Breakfasts, Lunches, Dinners, Desserts, Scones/Loaves/Miscellaneous.

BREAKFAST

Porridge - 50 servings

1.5kg (15 cups) Oatmeal 1 Tab Salt
Water - 4 litres (1 litre cold, 3 litres hot or boiling)

Mix oatmeal to a paste with cold water. Add salt and hot or boiling water. Bring to the boil stirring frequently. Boil 3-5 minutes.

Note: Saucepan will be easier to clean if filled with cold water immediately after serving. Use a quick cooking kind of porridge such as Flemings Rolled Oats rather than one that requires soaking.

Scrambled Eggs - 50 servings

3 dozen eggs 6 litres (24 pints) milk
2 dsp salt

LUNCHES

If a day trip is planned set up a table with ingredients and allow children to prepare their own lunches under supervision.

Some suggestions for lunches at camp.

- o Soup followed by cheese scones, cheese on toast or sandwiches with cheese, meat or egg filling.
- o Spaghetti
- o Baked beans
- o American hot dogs - long bread rolls, saveloys or frankfurters and tomato relish.
- o Cold meat, e.g. luncheon sausage and salad.
- o Sandwiches or filled rolls.
- o Rice risotto.

DINNERS

Pie - 50 servings

Cut up 10 kg gravy beef 20 onions
Sprinkle with 2 cups flour; brown in a little fat for 5 mins.

Cover with water, bring to boil.

Add 20 carrots, 15 parsnips or 6 packets mixed veges, salt & pepper.

Cover & simmer until nearly cooked. Half hour before serving make scone dough:

Mix 10 cups flour, 10 tsp baking powder, 4 Tab fat with enough water to make a firm dough. Spread over stew and cook half an hour.

Pumpkin Pie (Savoury) - 50 servings

Good way to disguise pumpkin

Cook required amount pumpkin until just tender.

(Usually about 1 1/2 pumpkins)

Mash with butter, salt, pepper. Spread out evenly in baking dishes.

Take 1 litre milk and 4 eggs, break eggs into milk and beat.

Pour this mixture over mashed pumpkin. Do not drown!

Lastly cover with grated cheese, seasoning.

Reheat in oven at 350°F. Milk and egg will set pumpkin.

Melted cheese hides it until too late!

Chop Suey - 50 servings

5 kg stewing steak 2.5 litres stock

fat for frying 2 kg carrots, grate

1.5 kg onions, sliced 2.5 kg cabbage, shred

2 kg celery, diced 50 g cornflour (1/3 cup)

2 Tab salt, 1 tsp pepper 500 g peas - tinned or frozen

Cut meat into cubes and fry till brown. Add onion, celery, salt, pepper and stock. Cover and cook 1-1 1/2 hours or until tender. Add carrot and cabbage and cook 10 minutes. Blend cornflour with a little cold water and add. Add peas. Simmer 2-3 minutes. Serve with boiled rice.

Variations:

Any other vegetables may be added or amounts of vegetables altered.

Dehydrated peas may be used - add with onion and celery.

In place of stewing steak other meat may be used, e.g. mince, chicken, left over cooked meat. Vary the cooking time accordingly.

Chilli Con Carne - 50 servings

8 kg stewing steak, e.g. blade, chuck

3 Tab chilli powder 1500 ml tomato puree

6 cloves garlic, crushed 2 kg kidney beans, soak in warm water

(or 2 tsp instant garlic) 1 litre water

3 Tab salt 1 kg onions, sliced

100 g flour (3/4 cup)

Mix meat with the chilli powder, garlic and salt. Brown the meat. Add onion, tomato puree, and water. Simmer 1 hour. Drain kidney beans and add. Simmer 1 hour or until meat and beans cooked. Mix flour to a smooth paste with a little cold water. Add and cook 10 minutes. Serve

Variations:

Use mince in place of stewing steak. Reduce cooking time by omitting to simmer 1 hour in step 3.

Beef Stew - 50 servings

8 kg stewing steak, e.g. blade, chuck

2 litres stock or water 2 Tab salt, 2 tsp pepper

1 kg onions, sliced 1 kg carrots, sliced 1 1/4 c flour

Cut meat into cubes and brown. Add stock and onions. Bring to the boil. Simmer gently 2 1/2-3 hours. Add the sliced vegetables 1 hour before serving. Mix the flour and seasonings to a smooth paste with water. Blend into the stew. Cook 15 minutes before serving.

Variations:

In place of stock or water use soup powder, e.g. tomato or mushroom, mixed with water. Omit flour. Add any other vegetables, e.g. diced celery, peas, beans, etc. For Hawaiian stew reduce water to 1 litre and add pineapple pieces and juice (1 large tin).

Curried Beef - 50 servings

8 kg beef steak, e.g. blade, chuck, etc.
2 litres stock or water 200 g flour (1 2/3 cup flour)
1 kg onion, sliced 1500 apples, chopped
1/4 - 1/2 cup curry powder 250 g sultanas
4 Tab salt 1500 g rice

Cut meat into cubes. Fry the sliced onion in oil. Add curry powder and flour and stir to make a smooth mixture. Gradually add water or stock. Add meat. Simmer till meat tender - about 2 hours. Add apple, sultanas and salt 30 minutes before serving. Cook the rice in boiling salted water until tender. Serve with the curry.

Variations

Add any of the following with apple -

500 g sliced bananas 100 g grated coconut
500 g grated carrot 1 cup chutney

In place of beef use mutton - neck or leg chops.

PASTA RECIPES

Spaghetti with Sausages in Onion Sauce - 50 servings

2 kg spaghetti 60 pre cooked sausages (approx 6-6 1/2 kg)
220 g butter 8 large onions, thinly sliced
1/2 tsp mixed herbs 300 g plain flour
4 litres hot water 1 1/2 Tabs instant beef stock
salt & pepper 2 tsp gravy browning to colour.

Melt butter in very large saucepan. Add onions and herbs, stirring with wooden spoon or spatula, lightly cook for 4 minutes.

Add flour, mix well. Cook on low heat for 2-3 minutes.

Using a large whisk, gradually pour in hot water, stirring continuously.

Mix stock with a little hot water, stir into pot. Season to taste.

Bring to a light boil. Reduce heat and simmer for 10 minutes. Add gravy browning to colour. Add sausages to sauce and heat through thoroughly. Do not re-boil or sausage skins will split.

Cook spaghetti in plenty of boiling salt water for 10-12 minutes.

Drain well. Mix with 4 tablespoons of butter.

To serve: Arrange spaghetti on hot plates. Spoon two sausages and sauce over top.

Spaghetti Bolognese - 50 servings

4 kg spaghetti 150 g butter
4 large onions, chopped small 4 large carrots, diced small
8 celery stalks, diced small 1 tsp oreganum, 1 tsp basil
4 kg lean minced beef 4 x 425g tins tomato puree
3 Tabs instant beef stock 4 litres hot water
2 dsp sugar, salt & pepper 4 Tabs cornflour, more if required

Melt butter in large saucepan. Add onions, carrots, celery and herbs, stirring. Lightly cook for 5 minutes. Turn up heat, add mince, stirring well. Cook for 8-10 minutes. Add puree, instant stock, water and sugar. Stirring occasionally bring to boil. Season to taste. Reduce heat and simmer lightly for 40 minutes.

Mix cornflour with a little water and stir into sauce.

Cook spaghetti in plenty of boiling salt water for 10-12 minutes.

Drain well. Mix with 2 tablespoons of butter.

To serve, arrange spaghetti on hot plates, spoon sauce over the top.

Serve grated cheese separately if required.

Lasagne with Minced Beef - 50 servings

10 small onions - chopped 4 small carrots - diced small

4 sticks celery - diced small 1/2 tsp mixed herbs

450g approx. (16oz) green bacon or ham - chopped

5 kg approx. lean minced beef

340g approx. (6oz) butter or margarine

1 1/2 cups flour 3 Tabs tomato puree

1 tsp Cayenne pepper

2 litres approx. (3 pints) stock - hot seasoning

225g approx. (8oz) tinned tomato sauce

5 kg approx. (5 lb) lasagne

1.5 kg approx. (1 lb) grated cheese of choice

Melt butter, add bacon, onions, carrots, celery & mixed herbs. Cook lightly for 5 mins. Add minced beef and saute for 5 or 6 mins stirring well. Add flour to bind, add tomato puree and cayene pepper. Pour in hot stock - gradually - a little more if required, stirring well, making a good thick minced beef sauce. Season. Cook slowly for 20 mins. Take off stove, allow to cool down.

Cook lasagne in plenty of boiling salted water until tender but firm to bite. Strain well. Grease baking dishes, spread base with tomato sauce then cover with 1/2 of lasagne. cover with cooled minced beef sauce, cover with remaining lasagne, sprinkle with grated cheese. Bake in oven at 190°C (375°F) for 30 mins. Garnish with chopped parsley if available.

Macaroni Cheese - 50 servings

5 kg macaroni elbows 500g butter

400g plain flour 6 litres milk (hot)

1.5 kg tasty cheese, grated salt & pepper to taste

1/2 tsp paprika 4 large onions, chopped small

1 kg bacon, fry or grill, cool & chop small (optional)

Melt butter in large saucepan. Add flour, mix well using spatula or wooden spoon. Cook on low heat for 2 to 3 minutes.

Using a whisk, gradually pour in hot milk, stirring continuously. Bring to light boil. Reduce heat and simmer for 7 or 8 minutes. Season to taste, mix in paprika. Stir in 3/4 of cheese.

While sauce is cooking, cook macaroni in plenty of boiling salt water for 8-10 minutes. Drain well, stir into sauce, stir in raw onion. Turn into large buttered baking dish. Sprinkle with remainder of cheese. Dot with 60g of butter.

Bake in preheated oven at 210-220C for 25-30 minutes or until golden brown. Sprinkle with chopped bacon and serve.

Macaroni Lamb Curry - 50 servings

4kg macaroni elbows 500g butter

4 large onions, chopped 4 large carrots, diced small

2 seeded red pepper, cut in half, sliced thin

8 cloves garlic, crushed and chopped

5kg boned lamb forequarters, cut in 1cm pieces

8 Tabs curry powder, more if required

700g (approx 6 cups) plain flour	
4 Tabs tomato puree	8 litres chicken stock, hot (soup mix)
salt & pepper	2 x 220g tin pineapple pieces
1 Tab desiccated coconut	2 Tab malt vinegar
4 cups cream, optional	
2 1/2 cups blanched peanuts, chopped	

Melt butter in large saucepan, add onions, carrots, red pepper & garlic. Cook lightly for 5 minutes, stirring well. Turn up heat, add lamb and saute for 10 minutes. Add curry powder, mix well, add flour to bind. Cook 5 minutes, stirring well. Gradually pour in stock, stirring well. Bring to simmering point, season to taste. Add pineapple & juice, coconut & vinegar. Simmer until lamb is tender, approx. 45 minutes. Stir in cream, remove from heat; keep hot. Cook macaroni for 10-12 minutes. Strain well. Mix with one tablespoon of butter.

To serve: Place macaroni on hot plates or serving dish and mask with curried lamb sauce. Sprinkle with chopped peanuts and coconut. Garnish with hard boiled egg, sliced banana and mango or fruit chutney.

Kiferi and Chicken Gratin - 50 servings

4kg kiferi	4 x No.8 chickens
1kg butter	2 large onions, chopped small
4 cloves garlic, crushed/chopped	8 sticks celery, sliced across thin
1/2 tsp rosemary	4 rashers bacon, finely shredded
1kg plain flour	8 litres chicken stock, hot
2 Tabs chopped parsley	1kg mushrooms, thinly sliced
2 cups cream	5 cups white breadcrumbs
2 cups grated parmesan cheese or	4 cups cheese of choice

Boil chickens in salt water, adding a little onion, parsley & celery, for approx 40 minutes. Allow to cool; skin & bone, cut meat into bite sized pieces. Reserve stock.

Cook kiferi in plenty of boiling salt water for 10 minutes. Drain well, mix with a little butter. Melt butter in large saucepan, add onion, garlic, celery, rosemary & bacon. Lightly cook for 6 minutes stirring with wooden spoon. Add flour, mix well, cook for 5 minutes. Gradually pour in hot chicken stock, stirring well. Bring to boil, simmer for 10 mins. Scald mushrooms in boiling water, drain well. Remove sauce from heat & add mushrooms, parsley, chicken, cream, cooked kiferi, salt & pepper. Fold all together well. Pour into large buttered casserole baking dish. Smooth top. Sprinkle with breadcrumbs, then cheese. Bake in a preheated oven at 190C for 20-30 minutes until lightly brown on top. Serve more grated cheese separately.

FISH DISHES

An easy fish dish for large numbers.

Toast slices of bread (wholemeal) for number of people.

Place slices of toast on oven dishes.

Place a 100g boneless fillet on each piece of toast (lemonfish or snapper)

Cover fillet with whipped cream and grated cheese - add sprinkling of salt, pepper and paprika. Bake in a moderate oven.

Serve garnished with parsley.

Sweet and Sour Mackerel

Ingredients

Number of Servings

10 25 50 100

Mackerel fillets	1 1/4 kg	3 1/4 kg	6 1/2 kg	13 kg
Flour	2 cups	500 g	1 kg	2 kg
Salt	1 tsp	2 tsp	4 tsp	2 1/2 Tabs
Pepper	1/8 tsp	1/4 tsp	1/2 tsp	1 tsp
Eggs	3	6	12	24
Saffron	1/2 tsp	1 tsp	2 tsp	4 tsp
Butter)	30 g	75 g	150 g	300 g
Oil)	60 ml	150 ml	300 ml	600 ml
Root ginger	1 tsp	5 g	10 g	20 g
Cornflour	2 Tab	4 Tab	60 g	120 g
Brown sugar	2 Tab	4 Tab	120 g	240 g
White vinegar	4 Tab	60 ml	120 ml	1 cup
Fish stock	1 3/4 cups	3 1/2 cups	1 3/4 l	3 1/2 l
Salt	1/2 tsp	1 tsp	2 tsp	4 tsp
Pepper	shake	1/8 tsp	1/4 tsp	1/2 tsp
Raw rice	400 g	750 g	1 1/2 kg	3 kg

Alternative fish: kahawai, kingfish, hake, warehou, groper, monkfish.

Cut fish into bite sized cubes, toss in flour seasoned with salt & pepper and coloured with saffron.

Dip fish in beaten egg, drain, then toss again in remaining flour.

Heat oil & butter together in a heavy based pan, add very finely chopped root ginger, cook 1/2 minute then add fish. Stir gently until all surfaces are sealed. N.B. Unless a large tilt fryer is available it is best to cook this dish in batches of 10 servings.

Blend cornflour, brown sugar, vinegar, salt, pepper & fish stock. If stock isn't available use water. Add to fish, bring all to the boil, then simmer 4 minutes. Meanwhile have rice cooked. Serve on rice, garnished with lemon and parsley and if desired asparagus, broccoli, or tomato.

Cooking time: in heavy based pan - 8 minutes.

WOK DISHES

Preparing food in a wok is practical especially if gas, or an open fire, is used. A wok is however probably not suitable for preparing food for more than 20 people unless it is very large. Some suggestions for using a wok appear in the Fires and Cooking module of the Outdoor Kitset.

Hints for Using a Wok

- o ensure the wok is dry and clean
 - o in chinese cooking you prepare the vegetables (a) first, and then the meat (b).
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- a) Preheat wok (to a high temperature), add oil, add vegetables and when 3/4 cooked remove and keep warm.
 - b) wipe out wok with paper towel - heat wok to high temperature, add oil and then meat. When 3/4 cooked, add seasonings and vegetables.
 - o Mix vegetables and meat and add stock (thicken with cornflour if necessary).

POULTRY AND EGG DISHES

(these recipes use table hens, not chickens)

Country Style Poultry with Dumplings - 50 servings

8 table hens	28 cups water
16 bacon rashers, chopped	salt & pepper
2 cups pearl barley	8 large onion, chopped
16 carrots, diced	16 sticks celery, chopped

Dumplings:

8 cups flour, pinch salt	8 tsp baking powder
400 g butter	8 Tab chopped parsley, water

Cut table hen into serving size pieces, remove skin from all parts, except wings & drumsticks. Place in large saucepan with the water, bacon, seasonings and barley. Bring to the boil, simmer gently for 2 hours. Add onion, carrots & celery & simmer until vegetables are tender. Make dumplings by sifting together the flour, baking powder & salt. Rub in the butter, add parsley & mix to a soft dough with a little water. Place spoonfuls of dough on top of stew & simmer for 10 minutes.

Garlic Poule with Noodles - 50 servings

8 table hens	24 Tab olive oil
30 garlic cloves	16 bay leaves
5 Tab dried tarragon	16 Tab chopped parsley
2 tsp cinnamon	salt & freshly ground black pepper
300 ml dry white wine (optional)	4 kg egg noodles
250 g buttered breadcrumbs	

Drop separated cloves of garlic into boiling water for 10 seconds, drain & peel. Cut table hen into serving pieces, removing skin from all parts except wings & drumsticks.

Heat oil in heavy saucepan, add poultry pieces, garlic cloves, seasoning, herbs & wine. Cover tightly & simmer until poultry is tender, adding a little water if necessary, approx. 2 hours.

Preheat grill; boil noodles until al dente (firm to the bite) - approx. 10 mins. Mix with cooked poultry and place in a buttered casserole. Top with breadcrumbs & slip under grill until crumbs brown.

Note: This may seem an overpowering amount of garlic, but it loses its strength when stewed and becomes pleasantly nutty rather than pungent.

Eggaroni - 50 servings

70 eggs, hardboiled	300 g butter
12 onions, finely chopped	6 green pepper, seeded & diced
24 Tab flour	12 x 450 g can peeled tomatoes
25 cups cooked macaroni (any shape)	6 tsp dried oreganum
salt & cayenne pepper to taste	12 cups grated tasty cheese

Melt butter in large frypan & saute onion & green pepper until tender. Stir in flour & cook a few minutes, then add tomatoes with juice & bring to boil. Simmer 5 minutes. Stir in cooked macaroni, season with oreganum, salt & cayenne pepper. Carefully add sliced or quartered eggs to the sauce & sprinkle over the grated cheese. Allow to heat through gently.

Egg Noodles Alla Carbonara - 50 servings

70 Golden Grade Eggs	3 kg grated tasty cheddar cheese
12 large onions, chopped	7 tsp paprika
15 rashers bacon, chopped	6 kg egg noodles
salt, freshly ground black pepper	2 kg fresh or frozen peas
12 dsp oil	

Beat eggs, cheese & seasonings to a soft paste, adding a little cream to thin if necessary. Saute onions & bacon until golden brown. Meanwhile, cook the noodles and peas in a large pan of boiling salted water, until just tender (about 12 minutes). Add oil to the water to prevent noodles sticking. Drain. Return noodles & peas to the pan with a little butter, add bacon & onions & pour over the egg-cheese mixture. Toss over very low heat for 2 minutes until sauce is creamy (be careful not to scramble the eggs!) Adjust seasoning and serve immediately.

DESSERTS**Rice Pudding - 50 people**

7 litres milk	8 cups rice
1 1/4 cups sugar	1 tsp salt

Mix milk, sugar and salt together. Pour over rice. Bake slowly in oven until pudding is brown on top and of thick, creamy consistency.

Baked Custard - 50 people

5 litres milk	10 eggs	salt
3 cups sugar	2 cups raisins	vanilla

Beat eggs with a pinch of salt. Pour on hot milk, add sugar, vanilla and raisins. Bake 250°F-350°F until set.

Makes one large meat dish full.

Banana Custard - 50 people

9 litres milk	2 cups sugar	20 bananas
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27 heaped dsp. custard powder

Slice bananas. Make up custard. Pour over bananas.

Apple Crumble - 50 people

A great favourite with icecream.

5 kg. bag apples - seconds will do. Peel, core, slice.

Put sliced apples in baking dishes, (the thicker the layers the better.)

Pour a little water in bottom of pans to prevent catching.

Shortcake - 50 people

Camp Cheesecake - 50 people

SCONES/LOAVES, MISCELLANEOUS

Doughnuts - 50 people

Pancakes and Pikelets - 4-5 people (x 10 for 50)

Griddle Scones - 5 people (x 10 for 50)

34

QUANTITY CHECK LIST

This list will help you to decide quantities of different food items needed for your camp.

Beverages

Coffee: 30g makes 25 cups Cordial: 2 litres makes 72 cups
Tea: 50g makes 25 cups

Biscuits

A box contains about 2kg and is cheaper
Assorted Creams: 500g approx. 30 biscuits
Plain Mixed: 500g approx. 40 biscuits
Crackers: 500g approx. 53 biscuits

Bread & Rolls

For tramps or picnics: 2 rolls per person
For salads: 1 roll per person
For breakfasts: 1 1/2 to 2 slices per person
For sandwiches: 4 slices per person
A pre-packed, sliced loaf contains about 20 to 25 slices

Cereals

Cornflakes: 15 serves to 1 large packet
50 serves can be obtained from 3 large packets
Weetbix: 15 serves to 1 large packet
50 serves from 3 large packets
Porridge: Allow 40g per person

Cheese

For salads: 30g per person

Custard Powder

One 300g packet makes sufficient custard for 50

Dripping

Amount used varies with cooking needs. Check recipe. Used dripping from home is handy for extra needs.

Eggs

For scrambled eggs: 1 egg per person
For salads: either 1/2 or 1 egg per person
For other cooking, extra eggs are needed, e.g., for rissoles, meringues, etc. Check recipe.

Fish - tinned (Salmon or tuna)

For Cooking: 425g tin serves 10
For Salads: 425g tin serves 6

Frozen Vegetables

Beans: 2 kg serves 30; 3 kg for 50
Mixed Vegetables: as for beans
Carrots: 2 kg serves 35; 3 kg for 50
Peas: as for carrots

Jam or Honey

Allow 30g per person for every meal in which it will be used, e.g., breakfast, supper.

Jelly Crystals

25g per person; 1.3 kg serves 50 1 packet contains 106g.
12 packets = 1.3 kg approx. Note: To make up 1.3 kg use only 4.5L of water.

Margarine or Butter

15g per person per meal; 250g per week for all needs.

For spreading 1 loaf bread: allow 150g

For spreading 60 scones or pikelets: allow 250g

For spreading 120 crackers: allow 250g

Meat

Meat with bone, e.g. chops, legs: approx. 250g per person

Boneless meat, e.g. minced steak: approx. 150g per person

Sausages, 2 per person: approx. 1/2 kg contains 6

Bacon rashers: 250g serves 5

Luncheon sausage: 3kg in a skin, serves 2 thin slices per person, for 50.

Milk

Approx. 1/4 litre per person per day - for cereal, tea, etc.

For cereal: approx. 1/2 litre serves 3

For tea or coffee: approx. 1/2 litre serves 16.

For all needs: approx. 4 litres serves 10 each day

Evaporated milk: 1 x 400g tin makes 1 litre or have on hand UHT milk

Powdered milk: 1 x 1kg tin makes 4.5 litres,
85g makes approx. 1/2 litre.

Cream: approx. 2 litres for 50.

Long life UHT whipping cream is a useful standby.

Rice

As a vegetable: 30g per person

As creamed rice: 1 kg serves 50

Salt

50g per person per week

Soup

3 kg serves 25

Sugar

3 kg to 3.5 kg per day, for all

For tea and coffee: 500g for 50

Tomato Sauce

30ml per person per meal

Vegemite

14g per person per week for breakfasts

Tinned fruits and vegetables

3 kg serves 25, 850g tin serves 7 Beetroot: 425g tin serves 50

Pineapple pieces, for salad: 3 kg Prunes: 3 kg will serve more than 25

Vegetables - fresh

Cabbage: 3 kg shredded serves 50, 3 kg cooked serves 20

Carrots: 500g ringed serves 8, 500g grated serves 12

Cauliflower: 5.5 kg serves 50

Celery: 1 bunch serves 25

Cucumber: 1 long green cucumber serves 16 (2 slices each)

1 large apple cucumber serves 8 (2 slices each)

Lettuce: 1 large lettuce serves 8 to 10

Potatoes: boiled - 1 kg serves 10, 6 kg serves 50 per meal

baked - 1.5 kg serves 10, 7 kg serves 50 per meal

Pumpkin 6 kg serves 50 - count serving pieces for baking

Onion: Check recipes, and order as required;

for speedy preparation, dried onion may be used.

Tomatoes: 500g serves 4 in quarters, 6 kg for 50;

500g serves 6 in slices, 4 kg for 50.

MISCELLANEOUS ITEMS

You will need to consider taking the following items. Quantities will depend upon the number attending your camp.

Cleaning Agents:

Aluminium foil	Chux cleaning cloths <u>or</u>
Sponges	Cleansing powder
Detergent	
Dish cloths	Disinfectant
Electric light bulbs - if required	Fly spray
Gas cylinder	Matches
Paper towels	Pegs
Steel wool	Sunlight soap
Toilet rolls - sometimes supplied, take as required	
Washing powder	

Food and Condiments: You may need:

Beef cubes	Bicarbonate Soda
Bisto	Breadcrumbs
Brown sugar	Chicken cubes
Cinnamon	Coconut
Condensed milk	Cornflour
Curry	Gelatine
Icing sugar	Instant potato
Lemon essence	Lunch wraps
Mixed herbs	Mustard
Nutmeg	Patty papers
Pepper	Pickled onions
Plain flour	Rice Bubbles
Self-raising flour	Soya sauce
Vanilla essence	Vegetable oil
Vinegar	Worcestershire Sauce

A SAMPLE MENU FOR 1 WEEK
(for a well-equipped kitchen)

	BREAKFAST	LUNCH	DINNER
MONDAY	-	Bring own cut lunch	Main - shepherds pie (Mince) with mashed potatoes on top, frozen mixed vegetables. Dessert - instant puddings (sliced bananas)
TUESDAY	Porridge, Cereals. Spaghetti on Toast. Toast.	* Chicken pie 2 full sandwiches each. Apple or Banana. Boiled egg.	Main - corn beef - Cold/sliced, baked stuffed potatoes, carrots quick-stirred cabbage. Dessert - apple crumble & ice cream
WEDNESDAY	Porridge, Cereals. Toast Poached eggs on toast - 2 per person.	* Bacon & egg pie. 2 full sandwiches. Orange/apple Cheese cubes.	Main - beef stew, mashed potatoes, pumpkin pie, Frozen green beans Dessert - jellies, mixed fruit.
THURSDAY	Porridge, Cereals. Toast. Baked beans on Toast	* Mince square. 2 full sandwiches. Carrots/apples. Cheese	Main - sausages, gravy, roast potatoes, coleslaw Beetroot, cheese/carrot salad. Dessert - custard & sliced peaches.
FRIDAY	Porridge, Cereals. Toast. Scrambled eggs.	* Sausage & egg pie. 2 full sandwiches. Apples. Boiled eggs.	

* Ask a local bakery to prepare the appropriate number of trays. This can be an economical and convenient way to prepare lunches. Keep frozen prior to use.

SECTION 3

TEACHING AIDS/RESOURCES

RESOURCE MATERIALS

1. LEAFLETS AVAILABLE FROM DISTRICT OFFICES OF THE DEPARTMENT OF HEALTH

No 176 Keeping it Cool
 (Storage times for refrigerated and frozen foods)

No 99 Facts for Food Handlers

No 165 Fundamental Five of Safe Food Service

No 180 Food Care

No 372 Ways to Foil Food Infection

A 33 Important Temperatures in Food Hygiene (Poster)

Health Code 4159 Poisonous Plants

Health Code 4186 Safe Drinking Water

2. INSTITUTIONAL TRAINING ADVISORY COMMITTEE

Publications available from ITAC, to assist people who are involved with catering for large numbers include:

o	FOOD HYGIENE CARDS	\$ 5.00
o	FOOD PRESENTATION CARDS	\$ 5.00
o	A guide to Camp Catering	\$ 1.00
o	Food Cost Control	\$ 1.00

Apart from producing printed material ITAC run a "QUANTITY COOKERY COURSE".

The course is run through Polytechnics and Community Colleges. The courses are held 1 day per week for 18 weeks and take 108 hours. Other courses are available. ITAC may run weekend seminars on camp cookery in late 1984/85.

Information regarding courses and publications is available from:

The Training Adviser,
Institutional Training Advisory Committee,
3rd Floor, Durham Lane,
Auckland. Tel. 797-330
Postal Address: P.O. Box 7148,
Wellesley Street.

3. HOME SCIENCE DEPT. UNIVERSITY OF OTAGO

The Home Science Department of the University of Otago produces a selection of pamphlets and publications regarding food preparation. The bulletin "Catering with confidence" (\$1.25) gives a buying guide for cooking for a group of 50 people. Write for a publications list to:

Home Science Information Officer,
Otago University Extension,
P.O. Box 56, Dunedin.

The Home Science Department produces a box of catering cards which would be invaluable to anyone who is in charge of camp catering.

4. DEPARTMENT OF EDUCATION

- o STANDARD RECIPES FOR 50 - available from Outdoor Education advisers.
- o THE FOODSHOP BOOK (issued to all schools)
Practical information and guidelines for running foodshops in schools. A lot of this information would be valuable for camp catering. Copies of the booklet "The Foodshop Book" available from:
Project Foodshop, Dept. of Education, Private Bag, Wellington.

5. HEALTH EDUCATION RESOURCES PROJECT (HERP) KITSET

Schools will have kits available for teacher use. The nutrition section may be of use to teachers.

6. N.Z. FOREST SERVICE

CAMP COOKERY by D.M. Cowlin

At present this publication is being updated for reprinting. It should be available from District Offices of the NZ Forest Service in 1985.

7. NEW ZEALAND MOUNTAIN SAFETY COUNCIL (INC)

Bushcraft Manual 12

Bulletin 16 Food suggestions for a weekend trip

Bulletin 18 Fires and stoves for the outdoors

Fires and Cooking module of the Outdoor Kitset.

Available from District Committees or the National Office of the NZ Mountain Safety Council (Inc).

8. INTERNATIONAL COOKING

For recipes of other countries, write to the Embassy of the country you are interested in (consult a Wellington Telephone Directory).

The Girl Guides Association produces a book: "World Games and Recipes", \$2.35 at Girl Guide shops in the major centres. This book has recipes from around the world.

9. **SCOUT CENTRES**

Scout centre stores throughout New Zealand stock many books about cooking in the outdoors.

10. **N.Z. FLOURMILLS LTD**

P.O. Box 30461, LOWER HUTT

Write to this address for Pasta recipes.

11. **HOME ECONOMICS SECTION, N.Z. DAIRY BOARD,**

P.O. Box 417,

WELLINGTON

Write to the above address for recipes using dairy products.

12. **HOME ECONOMICS SECTION, N.Z. POULTRY BOARD,**

P.O. Box 379,

WELLINGTON

Write to the above address for recipes which use poultry products.

13. **N.Z. FISHING INDUSTRY BOARD**

HOME ECONOMICS SECTION

Private Bag, Manners St. P.O.,

WELLINGTON

Ph: 724-008

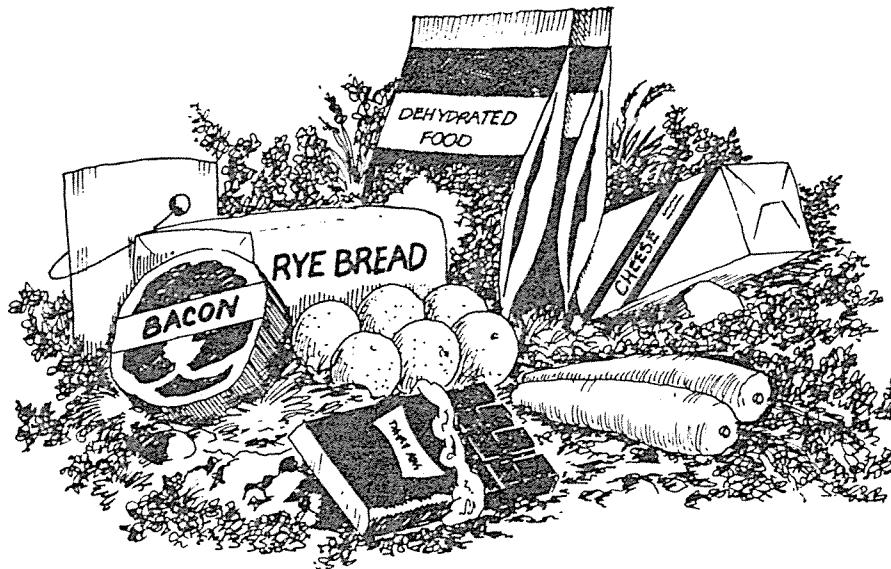
Write to the above address for recipes using seafood, or obtain recipes from your local fish retailer.

FOOD FOR DAY TRIPS

A lunch should be at least twice as big as a usual schoolday lunch.

Bring:

- o Your choice of egg, cheese, cold meat, sardines, peanut butter etc. either made into sandwiches or eaten with dry biscuits.
- o Solid biscuits or cake. (e.g. gingernuts or fruitcake).
- o Fruit (apple, orange).
- o A selection of these to eat during rest stops.
chocolate boiled lollies chippies
dried fruit barley sugars nuts
health food bars
- o Drinks: A packet of powdered fruit drink and a mug.
(Bottles and cans are heavy, difficult to pack and have to be carried out).
- o Be sure to pack your food in containers which will prevent it being crushed.



- o **EMERGENCY FOOD:** Some biscuits, or a bar of chocolate, to be carried and not eaten.

MENU

Use the following menu for an overnight trip, or make up your own using the blank menu provided.

	BREAKFAST	LUNCH	DINNER	SNACKS
SATURDAY	at home	cut lunch fruit drink	soup, mince, potato, peas, gravy, instant pudding, coffee	nuts biscuits sultanas
SUNDAY	muesli milk drink saveloys bread coffee	bread butter cheese jam/fruit cake fruit drink	(at home) spare food sardines cabin bread	chocolate nuts

Emergency Food - chocolate/biscuits.

MENU

	BREAKFAST	LUNCH	DINNER	SNACKS
SATURDAY				
SUNDAY				

MENU

Use this blank menu to plan food for your camp

	BREAKFAST	LUNCH	TEA	SNACKS
MONDAY				MT
				AT
				S
TUESDAY				MT
				AT
				S
WEDNESDAY				MT
				AT
				S
THURSDAY				MT
				AT
				S
FRIDAY				MT
				AT
				S
SATURDAY				MT
				AT
				S
SUNDAY				MT
				AT
				S

APPENDICES

- Appendix 1. SAFE DRINKING WATER. Health code 4186
- Appendix 2. MEAT: SOME HINTS AND PRECAUTIONS FOR ITS USE
IN THE OUTDOORS
- Appendix 3. FREEZE DRIED FOODS
- Appendix 4. EATING OUT FOR TRAMPERS AND HIKERS
(Consumer magazine 209)

APPENDIX 1

SAFE DRINKING WATER

People can live without clothes, without shelter, and even for some time without food. Without water they soon perish.

In New Zealand we are blessed with a bountiful supply of water. In our homes water is available at the turn of a tap, and outdoors there is an abundance of lakes, rivers and streams. Not all water is safe to drink however. A growing population, industrialisation, and intensive farming has led to increased contamination. The greatest risk is from untreated human excreta which may contain disease organisms such as typhoid, dysentery and hepatitis. These disease organisms are too small to be seen and have no taste or smell, so it cannot be assumed water is safe because it appears clean. If you have any doubts that the water source is not completely safe, treat it yourself before drinking.

PUBLIC WATER SUPPLY

If your home is connected to a public water supply the water will be safe to drink. The local authority supplying the water is required by law to ensure that it is wholesome. To achieve the high standard required the water is filtered, disinfected and regularly tested to make sure all harmful contaminants are removed.

PRIVATE WATER SUPPLIES

Where no public supply exists homes may have a private supply. This may be a spring, a well, or rainwater collected from the roof. The health inspector of your local authority can give you advice on the selection of a safe source of water and on the safe operation of a private water supply. The local authority's engineer can advise on construction and where to go for professional assistance if needed.

SPRINGS AND WELLS:

Springs and wells, fed from deep underground, are safer than surface water.

Shallow wells can be unsatisfactory, especially if septic tanks are used for sewage disposal nearby.

ROOF WATER:

Care must be taken to choose a non-toxic paint and the first rainwater after painting or cleaning should be discarded. Storage tanks should be covered to prevent contamination and a sump should be provided to collect any debris from the roof. The sump should be cleaned out regularly.

WATER FOR CAMPERS AND TRAMPERS

RIVERS, STREAMS, CREEKS:

Take water from upstream of towns, factories, houses and other possible sources of contamination. Water should be taken from well beneath the surface where the flow is fast moving.

LAKES AND SURFACE WATER:

Water is likely to be contaminated if there are septic tanks in the area. Septic tanks are commonly found in rural settlements and small communities and sometimes in popular seasonal holiday resorts.

SNOW AND ICE:

Often not as pure as they look, particularly in popular areas and near resorts. Melt and treat before drinking.

EMERGENCY SUPPLIES

If the public water supply is disrupted for a long period (as may happen following a major earthquake) possession of water may be vital to your survival. With careful rationing 30 litres (7 gals) per person for drinking and food preparation can last for two weeks. Nearly all houses have up to 200 litres (40 gals) in the hot water cylinder and many also have a similar amount in the supply tank in the roof space. This should be safe to use without treatment. Water from all other sources intended for drinking, washing fruit and vegetables to be eaten raw, and for brushing teeth, must be treated to make it safe.

TO MAKE WATER SAFE:

Carry out the following -

1. Strain water through several layers of clean cloth into a clean container,
2. Boil vigorously for at least three minutes, and then
3. Store the water in the container in which it was boiled.

Water treated in this way is safe to drink immediately though it may taste flat. Taste will improve if left standing for several hours.

Reproduced from Health information series No. 178 Code 4186.

APPENDIX 2

MEAT

(Information prepared by Mr.P.D.Lowry, Microbiologist, MIRINZ, Hamilton)

Some hints and precautions for its use in the outdoors.

It is convenient to divide meat into three categories;

- (i) fresh, i.e. perishable;
- (ii) semi-shelf stable, i.e. stable with refrigeration;
- (iii) shelf stable, i.e. stable without refrigeration.

Only meats in the first two categories require special attention for handling.

(1) FRESH MEATS

During processing carcass meats acquire an intrinsic microflora which will ultimately develop to spoilage levels even at chill temperatures. The most important factors in retarding growth of these spoilage organisms are temperature and humidity. At ambient temperatures (ca.20°C) fresh meats will generally spoil within 1-2 days. Spoilage is characterized by the elaboration of putrefactive odours and the later development of a slime layer. At 5°C the shelf life is extended approximately 4 to 5 days. Some retardation of microbial spoilage can also be achieved if the meat surface is kept dry by a surrounding airflow. The following points apply directly to the holding of meat in a tramping situation.

- (a) Fresh meat should be regarded as having an effective shelf-life of one and, at the very most two, days under "normal conditions". A possible extension to two days may be gained if the meat is frozen at the outset and wrapped in a plastic bag and some insulation, e.g. a jersey etc. The meat should remain sufficiently cold for up to 24 hours to preclude significant microbial growth over this period.
- (b) Where ambient temperatures are warm and some extra cooling is desired the meat can be placed in a shaded spot and covered with a damp cloth to bring about evaporative cooling.
- (c) Fresh sausages and cooked meats can be considered to have a similar shelf life to fresh raw meats. Sausages may in fact show a reduced stability as they are frequently manufactured from poorer grade meats and have a higher bacterial loading than fresh meat cuts. Cooked meats, although having had a great proportion of their raw meat microflora eliminated during cooking, are readily contaminated by handling and spoil in a manner similar to fresh raw meats.
- (d) Although meat inspection and slaughtering hygiene standards in New Zealand ensure meat of high microbial status, freedom from pathogens cannot be assured. The minimum growth temperature of most of the food poisoning organisms is ca.10°C, but it is difficult to maintain meat at this temperature unless

refrigeration is available. If the meat temperature is suspected of being held in a range greater than 10°C for prolonged periods it is possible that growth of pathogens may have occurred. This situation is of particular concern for cooked meats where S. aureus or Salmonella may grow on meats intended for consumption without further cooking.

- (e) Most methods of carrying meat will cause sweating in the package and control of microbial growth through drying will not be practical. However if meat can be hung by placing in a cool spot where there is a full circulating breeze, some control over microbial growth can be achieved.
- (f) There is a popular belief that vacuum-packaged meats are more stable than air-stored meats over a wide range of temperatures. Whilst vacuum packaged meats are certainly more stable at chill temperatures, the two forms show a similar level of stability at ambient temperatures. Vacuum packaged meats may in fact pose more of a health hazard than non-vacuum packaged meats at ambient temperatures, as the anaerobic environment will assist the growth of any **pathogens** present.

(ii) SEMI-SHELF STABLE MEATS

Meats in this category include packaged luncheon meats, hams and traditional cured bacons. These meats show marked stability with refrigeration but will spoil if held at higher temperatures. If left unopened chub-packed luncheon meats will remain okay at ambient (20°C) for between 3-5 days and up to one week if the temperature can be held between 10°-15°C. Once opened this product becomes unstable and will spoil in a similar manner to fresh raw meats. Vacuum packaged luncheon meat products do not fall into this product category and the same considerations given for vacuum packaged fresh meats apply. Traditional cured bacons can be expected to be stable without refrigeration for several weeks but these products are hard to come by in the market. The more common low salt and nitrite cured bacons packed in vacuum packs show little stability and can be considered similar to fresh meats.

(iii) SHELF STABLE MEATS

Apart from the traditional freezer-dried products and canned meats two types of product, of particular use for tramping, are the traditional salami products and retort pouched meats. Care must be exercised in choosing salami products suitable for long term shelf stability. Salami manufactured in New Zealand can be divided into two groups - those which have been dried and are stable at ambient temperatures and those which are stable only with refrigeration. The latter group can be recognized by labelling requirements and can be likened to a chub packed luncheon product. The dried salami however are particularly stable and ideal for tramping purposes. Retort-pouched products generally include lightly cured and cooked products such as frankfurters and hams etc. These products are not very common in the market and are inclined to be expensive. However, they are stable at ambient temperature unless the pouch is punctured.

APPENDIX 3

FREEZE DRIED FOODS

The history of freeze drying meals dates back to the second world war when researchers were given the task of preparing a meal for soldiers that would meet the following criteria:

- (a) Retain full nutritional value.
- (b) Be lightweight so a soldier could carry many days' rations in his pack.
- (c) Could be prepared very quickly in battle conditions.
- (d) Could be stored in all temperatures without deteriorating.
- (e) Could be dropped from air with minimal damage.

It was eventually found that freeze drying was the "only" process that would meet these criteria. The product has been so successful that many of the world's military powers are using this product and it was also used as the major food component in many of the USA manned space missions.

RECONSTITUTION HINTS

Over the years a variety of users have developed ingenious methods of reconstituting food which are claimed to have many advantages over the manufacturers recommended method.

These include -

- (1) Using pouch as heating and eating utensil
 - (a) Fill the pouch (including contents) with cold water and fold over top to reseal pouch.
 - (b) Place directly in fire or embers to heat.
 - (c) Stir meal with fork, spoon or stick and eat directly from pouch.
- (2) Pre-preparing
 - (a) Fill the pouch (including contents) for the next meal with cold water and reseal the pouch after a meal or at any convenient time.
 - (b) Place pouch in your pack and allow to soak while walking.
 - (c) When meal is required place contents in utensil and heat, thus saving the normal soaking time and also giving ample time for complete rehydration.
- (3) Instant Preparation

It has been found that many of the meals can be prepared by simply pouring boiling water over the contents while still in the pouch and leaving to soak for a few minutes. Then eat hot direct from pouch.
- (4) Eating Dry

Some items can be eaten dry direct from the pouch as a trail snack. Particularly suitable for this are apples, apricots and yoghurt.

(Reproduced from Alliance Freezing
Co. Ltd. information)

APPENDIX 4

ARTICLE FROM CONSUMER MAGAZINE 209
SEPTEMBER 1983

EATING OUT FOR TRAMPERS AND HIKERS

We tell you about some lightweight foods and how nutritious they are.

If you are big and strong enough to carry a 20kg pack up hill and down dale for 20km or more a day, you may not worry how much the food weighs. On the other hand, novices and the less fit do not want their enjoyment spoiled by having to lug a heavyweight pack around. Just the same, the strong and not-so-strong recognise that there must be enough food, and it must be palatable. Advance planning is essential.

Usually, a tramping party will leave individuals to be responsible for their own breakfasts, lunches and snacks. The evening meal is different. Often, it is the only cooked meal of the day, and everyone carries a share. What is taken will depend not only on what foods are acceptable to the whole party, but what cooking facilities will be available. As well, to some, cost may be as important as weight. But, whatever you choose, do not cut down on the quantity of food you really need. Food supplies the fuel that helps maintain body temperature in bad weather. Severe chilling can lead to hypothermia.

In this survey, we report on some foods that are readily available for trampers. We also throw in a few recipes you might like to try out.

NUTRITION

What is most important? Protein or carbohydrate, vitamins or minerals? How long can you manage without fresh vegetables and meat? Individual trampers often swear by some special item but, in fact, the essentials are simple. You need energy - lots of it - and water. If you eat enough of the cereal foods (bread, biscuit, breakfast cereal, rice, macaroni) to satisfy your energy needs, plus some milk and cheese or similar foods, you will get enough protein without having meat every day. Physical activity uses up energy, rather than protein.

Butter, fruit drinks, sugar, jam, honey and sweets also provide a lot of energy. But they lack the fibre and protein that goes along with carbohydrate in cereal foods.

Contrary to popular belief - and advertisers' promotions - normally healthy people do not need lots of vitamins every day. The body stores enough of the fat soluble vitamins (A and D) to last for months, and it takes several weeks to run down the stores of the other vitamins (B group and C). Cereal foods in your rations will give you vitamin B, so the only one that might be in short supply is vitamin C. You can solve that problem by tucking fruit drink powders in your pack.

Usually, a tramping party guards against possible delays by taking along an extra quantity of a basic food like rice. With the addition of other bits

and pieces of grub the party can manage well for an extra day or two. Even with very little food, there is no fear that you will rapidly starve. But hungry impatient people can make unwise decisions, such as attempting to cross a flooded river, or travel on in "exposure" conditions, rather than sensibly wait it out.

Each individual should carry some survival rations that require little or no preparation. The commonest mishap involves one person becoming separated from the others - and the shared food. So always pack a spare packet of drink powder or milk powder, some hard sweet biscuits and an extra dollop of scroggin or sweets. For those unfamiliar with the word, scroggin is a mixture of fruits, nuts, chocolate, sweets and anything else you like to add. Never break into your spare ration except in an emergency.

DIVIDING IT UP

With the right lightweight foods, you can get your daily needs tucked into less than 800 grams, providing over 3000 kcal per day. The Army does this with lightweight rations that include a daily quota of basic items, plus a varied selection of freeze dried foods to make up a four-day menu.

Their basics are biscuits (plain and sweet), honey, tea, coffee, milk powder, sugar, soup powder, curry, salt, sweets, chocolate and raisins. Menu A adds freeze dried ham omelet, lamb and peas, stewed peaches, potato flakes; Menu B, beef curry and rice, sweet and sour pork, stewed apricots, precooked rice; and so on and so on for menus C and D.

You, too, can choose from an equally wide range of foods but price is often a factor and freeze dried foods are not cheap. We have based our survey on a typical meal pattern for trampers, utilising ordinary grocery products as well as the more specialised ones.

Breakfast

Oat cereals are compact and easily carried. Porridge is still popular with trampers, but many now enjoy muesli. It can be homemade or bought but, for extra easy serving, add more milk powder - 3 to 4 level measuring tablespoons per cup of cereal when you pack it. Then, just mix with water. For a hot breakfast, you can mix the muesli with boiling water, or cook it like porridge. Bread and spreads, tea, coffee or cocoa-type beverages usually add up to an adequate breakfast if your day is not going to be a tough one. For extra staying power on a long day, some stalwarts prefer a "fry-up". Alternatively, including some peanut butter, cheese, or extra milk with your breakfast will delay that dipping into the scroggin.

Most trampers get off to an early start, so breakfast preparation needs to be quick and simple.

Snacks

An early light breakfast can be bolstered along the way with whatever scroggin mix you like. Raisins and other dried fruits, chocolate pieces, sweets and nuts, will restore energy quickly and pleasantly.

Lunch

Something light and savoury is the usual choice. Buttered bread or biscuits, plus sardines, peanut butter, salami or cheese makes a

concentrated meal. A hot drink is welcome in cold weather. Instant soups help make the snack more of a meal.

Dinner

Journey's end for the day - shelter, a fire, and the billy boiling. Time to meet others, to chat and compare the day's events. Whose turn to cook?

Breakfast and lunch may follow the same simple pattern each day but the evening meal is something different. How elaborate it is depends on how much you want to carry in terms of food, cooking utensils, burners and fuel.

For the light loaders, meals that can be prepared in one or, at most, two billies make sense. You may have found out the cooking facilities that exist at the huts along your route, but, in a busy season, hordes of other trampers may have got there first.

Rice or macaroni can be prepared early, added to the main course later and briefly re-heated. Dried fruits can be parboiled and left to soak. If you are staying more than one night, you can soak dried peas or beans to use the next day. But, mostly, foods need to be quickly prepared, and modern methods of drying produce meats and vegetables that are not only light and compact but "re-hydrate" quickly when water is added.

We had a look around the shops to see what was available, and tested some of the meat meals and meat substitutes, too. It is wise to try new dishes out at home before your trip, and see what suits you best in terms of taste, quantity, and cost. Experiment with variations, too. You should find some of them suitable for quick meals at home as well as on your next expedition.

BASIC ITEMS

The composition of foods can vary considerably, as can the quantities that different people need. So the figures in our tables and the quantities suggested are only workable guidelines for planning your supplies.

Bread

Like all the foods you pack, bread should be compact and sturdy. Unsliced wholemeal or similar loaves travel best. The solid-textured ones are generally moister and less crumbly. New Zealand breads do not have preservatives in them, so they will mould after a few days in warm weather, perhaps six days in cold weather. We give an American recipe for a slightly sweet bread - made with baking powder - that keeps mould-free for several weeks (see Mountain Bread recipe).

A moderate daily ration of bread (150 g, 5 to 6 slices) will give you 324 kcal and 13 g protein. You might take some plain biscuits to supplement your fresh bread supply. Cracker biscuits are drier than bread, so 90-100g of these will match the calories in 150g bread. But, individually, most biscuits are not very substantial so take enough of them, and choose the "tougher" ones that do not crumble.

Spreads

Butter on the bread bumps up the kilo calories. At about 10g per slice you

may use around 50 grams a day, say 370 kcal. Other popular spreads such as jam, honey, peanut butter, cheese, and sardines all add to the energy total. A tablespoonful of jam or honey contributes about 50 kcal, the same quantity of peanut butter, 90 kcal; a segment of cheese, 80 kcal; a small 42g tin of sardines adds 140 kcal.

Beverages

You need plenty of fluids to guard against dehydration. Billy tea is one of the rewards of the outdoors but, if people want a choice of beverages, tea bags are good for brewing in the cup. You can buy sachets of instant coffee, but a small container of loose coffee is handy enough and cheaper.

Fruit drink powders with vitamin C can be used with cold water or hot. Keep the powder handy when you stop for a drink along the route. These powders are largely ordinary sugar so they provide energy as well as refreshment. You get no energy, of course, from the "diabetic" sort.

If you like chocolate-flavoured milk, you can easily make a pre-mix by combining cocoa, Bournvita, Milo, etc, with milk powder. Try a cup of milk powder, three tablespoons of cocoa and four teaspoons of sugar sifted together. Use 3 to 4 tablespoons of mix to a cup of water (cold or boiling) blending to a smooth paste with a little water first.

You will probably use milk several times during the day: 60 g of non-fat milk powder or 80 g whole milk powder (about 1/2 cup) are equivalent to a 600 ml bottle of liquid milk. From this, you can judge how much to allow per day; for example, 30 g (1/4 cup) non-fat milk powder is equivalent to half a bottle of milk. Milk made from whole milk powder will supply the same amount of protein, but nearly double the energy of non-fat milk.

Scroggin

There is no end to the possible combinations in scroggin. Based on 50 g each of roasted peanuts, raisins and dark chocolate, a cup of scroggin (150g) will lift your energy by 670 kcal - and add 15g protein.

Hot Snacks

In cold weather, a hot savoury lunch can be made quickly by using soups or meal mixes to which you simply add boiling water. A cup of instant soup provides around 50 kcal, so it will need bread or biscuit to go with it.

The meal mixes are more substantial. The wide variety of savoury combinations in products such as Edmonds Lite Lunch, Cerebos Super Snack and Sunshine Quick Snack are based on rice, noodles or spaghetti with dried vegetables, meat and flavourings. High Mark instant noodles are quick to prepare, too. A small sachet of instant soup is included in the pack to add flavour - prawn, chicken or beef.

With soup powders, instant and otherwise, these snack meals can form the basis of a quick main meal. A large serving of soup, made with milk to replace some of the water, plus plenty of bread and biscuits, can be quite satisfying.

Main meals

Most of us regard meat and vegetables as the mainstay of the meal. Fresh supplies may be manageable for a weekend but, for longer trips, ordinary

vegetables are either too perishable, or too bulky and heavy to tote round in packs. One or two carrots and small onions may be worth a lift but modern dried vegetables are quick cooking and lightweight.

Surprise dried vegetables (peas, beans, carrot and mixes of several vegetables) yield 3-4 times their dry weight when cooked. They can be served separately as a vegetable, or added to stews and savouries. Potato flakes are very light; 1 cup of flakes mashed with 3/4 cup boiling water makes 1 cup of mashed potatoes.

Meat

Some people carry fresh meat for the first evening out, but its use is clearly limited. Modern freeze drying makes very light products that keep well and reconstitute well. Food is cooked ready for serving, then frozen and dried by heating in a special vacuum chamber. The ice crystals evaporate without melting, leaving small holes or pores in the final dried product. Because the product is so porous it absorbs water and "rehydrates" very quickly.

Any foods can be freeze dried - fruits, vegetables, meat meals, cereals, even yoghurt - but, since the process is an expensive one, ordinary cereals and dried fruits and vegetables are more economical and more commonly used by trampers. The Alliance Freeze Dried meat meals are generally 75 g packs that make up a cupful (250-300 g) for one person. But beware of the 5-packs! A single pack of beef curry and rice, for example, is 75 g, but a 5-pack box holds 300g, equivalent to only four single packs. You may get less food - and save less - than you expected on your bulk buy.

Meat substitutes

Soya bean flour can be used to make high protein foods that look like natural meat products. Most of the "textured vegetable protein" sold in health food shops comes from Archer Daniel Midlands (US), whose registered trade mark is TVP. We found TVP chunks and mince (fine and coarse) in Sanitarium shops, and Healtheries TVP mince and chunks in other health food shops. Ham and bacon flavours are available, but we stuck to the beef flavour throughout.

Comparisons per 100g	Water	Protein	Fat
TVP mince, dry	g 7	g 42	g 1
TVP hydrated	71	13	0.3
Stewing steak (raw)	69	20	10

Dry TVP has a high protein content, but absorbs a lot of water during preparation. That reduces its concentration considerably. We found that the large Sanitarium chunks absorbed less water than the TVP minces and the Healtheries chunks when soaked. But it made little difference to the final recipe.

Our taste panel though that the prepared TVP products looked meaty and had a reasonably chewy texture, although the TVP was slightly rubbery compared with real meat. But it lacked meat's odour and flavour - the "beef flavour" is synthetic, not real.

TVP is generally better at home as a meat extender, say, in a stew or meat loaf. One cup of dry TVP mince plus a cup of water makes about 350g of

"hydrated" TVP. You can then combine it with half a kilogram of mince.

You may or may not like the taste of TVP, but it is cheap enough to try out. If you like curries, you may find TVP curry okay. We tested a dry mix packed by Sanitarium in Wellington, containing TVP and dried vegetables, but the herbal curry used did not appeal to our taste panel.

We have included a recipe for TVP curry in our recipes below. Treat it as a starting point only. You can change it round to suit your own taste.

Fillers

Pasta and rice can be used to fill up the plate in place of other vegetables. They provide carbohydrate energy, fibre, and useful amounts of protein. Macaroni elbows are the most commonly used pasta, but experiment with others for variety. You may find, for example, that the larger lisci type provides a better size and texture contrast in some dishes. Long grain rice is best for savoury dishes, as the grains separate more.

You can boost the protein and flavour by adding cheese, fish or pieces of salami. A small can of tuna or shrimps is plenty for two, and cheese powder is light and convenient to use in pre-mixes. Dried vegetables provide colour and flavour.

Vesta dried meals have a sachet of rice (or noodles) and another containing dried meats, vegetables and spices to make a savoury sauce. You can also buy packs of savoury rice such as Sunshine Rice-n-things or Continental Savoury Rice, which contain rice, dried vegetables, spices, etc. We found that a 120g packet, with 50g of chopped salami added after cooking, made a 2-cup meal.

Desserts

If the main course does not satisfy you, you can fill up the odd corners with a variety of things - biscuits and coffee, raisin bread or even fruit cake, and so on. Cocoa or coffee made with milk is satisfying, too. Desserts are popular, and some are easily made. Anchor instant custard is simply mixed with cold water, Edmonds instant custard requires boiling water. Instant puddings are generally mixed with liquid milk, but it is simpler to add a packet of instant pudding powder and half a cup of milk powder to 600 ml of water and, so, mix both at once. More elaborate desserts can add a touch of luxury to a humdrum meal, so it is worth exploring the grocers' shelves for a special menu item such as packaged cheese-cake mix.

Dried fruits such as apples, apricots or prunes can be prepared if there is time - freeze dried ones are quicker, but more expensive.

What every tramper should know

Food is vital to your pleasure and safety. But there are lots of other things to learn about this enjoyable recreation. Look for the new edition of Bushcraft, which should be available about October (Manual No 12, NZ Mountain Safety Council, \$5.00 per copy).

TODAY'S MENU?

Meal patterns will vary a lot, but we looked at this example to see how you would fare through the day. Breakfast, snacks and lunch gave a daily average of 2000 kcalories and 60 grams of protein. Evening meal added 600-700 kcal and around 30 g protein to give a total of about 2700 kcalories and 90 grams of protein, well distributed through the day. For those who need more - or less - energy, the amounts can be adjusted as required.

BREAKFAST 1/2 cup muesli, 2 slices bread, butter, honey/jam, tea/coffee, one cup milk (on muesli, in tea).

SNACKS 1 cup scroggin, biscuits, fruit drink, tea, etc.

LUNCH 3 slices bread, butter, choice of cheese, sardines, peanut butter, etc; instant soup, various beverages.

DINNER	1	2	3	4	5
	Shrimp Noodles (2 cups)	Freeze dried beef	Tomato Soup Macaroni	TVP curry Peas	Tuna rice Instant
	Mixed veges	casserole	cheese	Rice	pudding
	Fruit bread	Mashed potato Caramel custard	Fruit Bread	Biscuits	Stewed apple

THE PRODUCTS WE TESTED

PRODUCT	Weight	Price	Yield	Per one cup serving**		
				Protein (g)	Energy (g)	Cost (g)
Sunshine Quick Snack Beef Curry & Rice	40 g	\$1.06	4/5 cup	5.8	180	\$1.06
Cerebos Super Snack Beef Curry & Rice	45 g	.89	1 cup	3.8	176	.89
Alliance Freeze Dri Beef Steak (raw)	40 g	\$2.65	100 g cooked	25	253	\$2.65
Alliance Freeze Dri Beef Curry & Rice	75 g	\$2.10	1 cup	18	40	\$2.10
Vesta Curry & Rice with Beef	230 g	\$2.09	2 cups rice 1 1/2 cups sauce	20	616	\$1.05
Sanitarium TVP &	125 g	\$1.19	3 cups	11.4	173	.40

Vegetable Curry

Our recipe, TVP curry	215 g	\$1.45	3 cups	15.6	220	.48
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FILLERS

Potato flakes	1 cup (35 g)	.18	1 cup	3.6	127	.18
Rice	1/3 cup (70 g)	.10	1 cup	5	283	.10
Macaroni elbows	1/3 cup (45 g)	.15	3/4 cup	6.2	167	.15
Instant noodles*	80 g	.62	1 3/4 cups	4	187	.31

Our tables compare, first, the products we tested as bought and on a "per serving" basis. Then, the various fillers that you might use - again, on a typical serving size of about one cup.

* Net weight 85 g. A small soup flavour sachet is included as well as the noodles.

** Generally, serving size is close to one metric cup (250 ml) but this can vary with the amount of water that is added - and lost - in preparation and cooking. Appetites vary, but one cup of "meat" product plus one cup of rice or mashed potato, for example, makes a fair serving.

RECIPES

Standard measures used:

One cup	=	250 ml
One tbsp	=	15 ml
One tsp	=	5 ml

NOODLES & SHRIMPS

1 packet instant noodles (85 g) One can shrimps (about 200g 7 oz)
1 1/2 cups boiling water

Put noodles and soup flavour in bowl, add boiling water, cover. Stand 2 1/2 minutes, turn noodles over, stand another 2 1/2 minutes. Stir in drained shrimps, serve.

YIELD: 2 cups. COST: \$2.14.

One cup serving = 247 kcal 17.3 g protein

NOTE: you can cook and add mixed dried vegetables, too.

TVP BEEF-FLAVOURED CHUNK STEW

1 cup TVP Chunks (110 g)	2 1/2 cups water
3 tbsp dr. carrots and peas	2 tbsp Bisto
1 tbsp dr. onion	2 tbsp water
1/4 tsp salt	

Bring to boil and simmer 30 minutes. (Add more water if too much evaporates). Thicken with blended Bisto.

YIELD: 2 3/4 cups. COST: \$1.08.

One cup = 203 kcal 18.3 protein

NOTE: soak TVP chunks for 15-30 minutes in hot or boiling water if possible.

MOUNTAIN LOAF (BREAD)

4 cups wholemeal	1/2 cup honey
3 tbsp milk powder	1/4 cup treacle or syrup
1 1/2 tsp baking powder	1/3 cup oil
1 tsp salt	1 cup water
3/4 cup brown sugar	

Mix all ingredients to make a smooth thick batter (some flours are more absorbent than others, you may need to add a little more water).

Grease baking tin (about 20 x 20 x 5 cm) thoroughly, and line bottom. Bake at 160°C for 1 hour or until loaf starts to shrink from sides. Cook, and cut to make 16 squares. Leave overnight to dry a little, then wrap each in plastic wrap.

YIELD: about 1200 g. COST: \$1.35.

One square = 222 kcal 4.2g protein

NOTE: you can add sultanas, raisins or mixed dried fruits if preferred.

TUNA RICE

3/4 cup rice	1 pkt instant soup (mushroom)
1/4 cup mixed dry veg.	1/2 cup boiling water
1/4 tsp salt	1 can tuna (185 g)
about 3 cups water	

Boil rice and veg. till tender (about 12 mins), drain. Mix soup powder and boiling water (or rice water). Stir prepared soup and flaked tuna into rice; reheat if necessary.

YIELD: 3 cups, 2 servings. COST: \$2.36

One serving = 594 kcal, 28.1 g protein

NOTE: to stretch the recipe, use one can tuna but double the other ingredients, to make 3 - 4 servings.

MACARONI CHEESE

1/3 cup macaroni	1 tbsp cornflour
1/4 cup cheese powder	1/8 tsp salt, pepper
3 tbsp milk powder	1/2 cup water

Cook macaroni till tender, drain. Combine other ingredients and stir into the macaroni. Bring up to boiling point; serve.

YIELD: 1 cup. COST: 40 c.

One cup serving = 437 kcal 23 g protein

NOTE: multiply the recipe as needed for extra servings. You can pack the required quantities of cheese and milk powders, cornflour and seasonings, in a plastic bag for a convenient ready mix.

TVP CURRY

1 cup TVP (100 g)	1/4 cup chopped dried apple
3 tbsp dried veg.	1/3 cup sultanas
1 tbsp dried onion	2 tsp curry powder
1/4 tsp salt	2 tbsp Bisto

Combine all ingredients except Bisto. Add 3 cups water simmer 30 minutes. Add water if needed. Bisto (or similar products) adds colour and flavour as well as thickening; blend with 2 tbsp water and stir in to thicken.

YIELD: 3 1/4 cups. Served with boiled rice, makes 3 good servings. One cup rice makes 3 1/4 cups, boiled.

COST: \$1.45, with rice \$1.74.

One serving = 220 kcal 15.6 g protein. Curry plus rice = 473 kcal
20.2 g protein.

NOTE: you can measure and pre-pack all ingredients in a plastic bag for
use as required. Include coconut if liked.

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